TERAHERTZ SPECROSCOPY OF METHYLAMINE

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Methylamine (CH_3NH_2) is a light molecule with an intense rotational spectrum that extends far beyond 1 THz even at temperatures characteristic for interstellar medium. This fact makes methylamine an interesting object of studies for THz radio telescopes like Herschel and SOFIA. In this context we present recent advances in global fitting of the rotational spectrum of parent isotopic species of CH_3NH_2 up to 2.6 THz. The Hamiltonian used in the analysis is based on the group-theoretical formalism developed by Ohashi and Hougen[a]. It has been successfully applied for the analysis of mm-wave and far-IR spectrum of methylamine[b] as well as for the analysis of sub-THz spectra of its ^{13}C isotopologue[c]. We will also present the latest results on searches for interstellar $^{13}CH_3NH_2$ as well as the results on the analysis of deuterated species of methylamine which is in progress now.
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[a] Ohashi, N. and Hougen, J. T. *J. Mol. Spec.* **121** (1987) 474.
[b] Ilyushin, V.V. et al. *J. Mol. Spec.* **229** (2005) 170.
[c] R.A. Motiyenko et al. FA08, 66th International Symposium on Molecular Spectroscopy (2011).